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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,638

11/24/2003

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04/05/2006

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EXAMINER

DANG, ROBERT TRONG

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,638

Applicant(s)

SATO, BUNYA

Examiner

Robert T. Dang

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 9-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election without traverse of Species 1: Figs. (1, 3) in the reply filed on 1/4/2006 is acknowledged.

Claim Rejections - 35 USC § 112

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how to release a "shut off" or what a "shut off" indicates. If applicant means current, the normal term should be used, which is assumed to be the meaning.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Mukainakano (6150797).

As to claim 1, Mukainakano discloses in figure 1, a battery pack including at least a battery cell and a protection circuit (114) for shutting off overcurrent discharge, comprising: shut-off holding means (109) for holding the discharge shut-off condition after abnormal discharge shut-off due to shorting or connection of a low resistance between the external plus terminal and the external minus terminal of the battery pack;

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and releasing means (125) for releasing the shut-off by the shut-off holding means by applying a predetermined voltage between the external plus terminal and the external minus terminal of the battery pack (see col. 4, lines 1-24 & col. 5, lines 22-33).

As to claim 3, Mukainakano discloses in figure 1, wherein said releasing means is a detector (125) disposed between the external plus terminal and the external minus terminal for detecting the application of a predetermined voltage between the both terminals (see col. 5, lines 22-33)

As to claim 5, Mukainakano discloses in figure 1, wherein said detector is one of a charger detector, a voltage detector, a voltage change detector, an A.C. resistance detector, and a voltage dropper (see col. 5, lines 22-33).

As to claim 6, Mukainakano discloses in figure 1, wherein said detector is connected to one of a differentiation circuit, and an one-shot circuit (see col. 5, lines 22-52).

As to claim 7, Mukainakano discloses in figure 1, wherein said discharge shut-off by the shut-off holding means is made by a discharging control switch (112) connected between the battery cell negative terminal and the external minus terminal (see col. 3, lines 32-38).

As to claim 8, Mukainakano discloses in figure 1, wherein said discharge shut-off by the shut-off holding means is made by a discharging control switch connected between the battery cell positive terminal and the external plus terminal (see col. 3, lines 32-38).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 and 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mukainakano (6150797) in view of Freedman (6242893)

As to claims 2 and 4, Mukainakano discloses all of the limitations as discussed above, but does not disclose the shut-off holding means having a resistance of 1 kilo-ohms or larger. Freedman discloses in figure 1, a shut-off holding means having a resistance of 2.61 K-ohms. In claims 2&4, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device and incorporate the resistance of 2.61 K-ohms in order to precisely choose the current limit when the circuit is deciding whether to turn on or off the discharging control.

As to claim 4, Mukainakano discloses all elements as noted above, except the value of the resistor in figure 1, including a battery pack including at least a battery cell and a protection circuit (114) for shutting off overcurrent discharge, wherein said protection circuit comprising: shut-off holding means (109) of a resistor block connected between a battery cell positive terminal and an external minus terminal; and a detector for detecting voltage between an external plus terminal and the external minus terminal; wherein abnormal discharge by shorting or connecting a low resistance between the external plus terminal and the external minus terminal of the battery pack is shut off,

and such discharge shut-off is maintained by the shut-off holding means; and the discharge shut-off (125) is released to recover discharge upon detecting by the detector the application of a predetermined voltage between the external plus terminal and the external minus terminal of the battery pack (see col. 5, lines 22-33). Also, it has also been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Dang whose telephone number is 571-272-8326. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl D. Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KARL EASTHOM
SUPERVISORY PATENT EXAMINER